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ABSTRACT

Voluntary skill standards are industry-based, industry-verified performance specifications that identify the knowledge, skills, and abilities individuals need for success in an industry. This resource guide is designed to raise awareness of voluntary skill standards, identify their benefits, and encourage stakeholder involvement in implementation in Ohio's voluntary skill standards. The role of skill standards in enhancing Ohio's ability to compete effectively in a global economy and promoting economic security is explained, and the evolution of the state's voluntary skill standards is traced. The processes of certification/accreditation of training programs and individual credentialing for students and employers are outlined. The need for partnerships is explained as well as the benefits employers, organized labor, educators, employees, and students derive from voluntary skill standards and the implications of voluntary skill standards for Ohio's vocational education and higher education programs. Also included is a six-page chart detailing the current status of voluntary skill standards initiatives in Ohio. Appended are key dates in the evolution of industry-based voluntary skill standards and the story of how Norton Manufacturing Company became the first U.S. company to implement national metalworking skills standards. Contains the addresses of 17 contact agencies and 4 references. (MN)

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Ohio's Resource Guide for Voluntary Skill Standards

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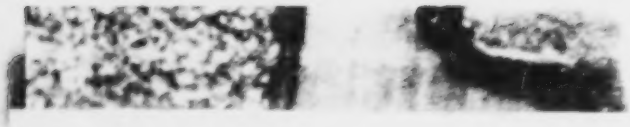
Purpose of Guide
Table of Contents



The purpose of the resource guide is to raise awareness of voluntary skill standards, to identify the benefits of skill standards, and to encourage stakeholders to participate in the implementation of skill standards.

The development of statewide, voluntary skill standards partnerships enhances Ohio's ability to compete effectively in a global economy, to promote economic security, and to provide a high standard of living for Ohioans.

Ohio's voluntary skill standards partnerships:

- Assure present and future Ohio employers a highly skilled workforce;
- Promote high performance work organizations;
- Encourage the use of rigorous academic, occupational, and employability standards; and
- Promote life-long learning and continuous training.

Voluntary skill standards may be developed by industries and implemented in full partnership with business, industry, education, organized labor, and communities, and will be flexible, portable, and continuously improved.

Table of Contents

What Are Voluntary Skill Standards	1
The Challenge and Opportunity	1
The Evolution of Voluntary Skill Standards	2
Chart: Pathway to Program Certification	2
Chart: Pathway to Individual Credentialing	3
The Certification and Credentialing Process	3
Certification/Accreditation for Training Programs	3
Individual Credentialing for Students and Employees	4
The Need for Partnerships	4
How Employers Benefit from Voluntary Skill Standards	4
Checklist To Help Develop Partnerships	4
How Education and Training Professionals Benefit from Voluntary Skill Standards	5
How Organized Labor Benefits from Voluntary Skill Standards	6
How Students and Employees Benefit from Voluntary Skill Standards	6
Chart: Understanding and Career Data Workflow in Metalworking	7
Charts: Current Status of the Voluntary Skill Standards Initiatives in Ohio	8-13
Appendix	
Key Dates in the Evolution of Industry Based Voluntary Skill Standards	14
The Norton Story	15
Resources and Contact Information	16

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March 1998

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What Are Voluntary Skill Standards?

In today's economy–where jobs are routinely re-engineered, where the trend is to link wages to skills, where education and training costs are rising, and where the pace of change is increasing dramatically–voluntary skill standards are needed to help employers, educators, job seekers, and employees assess education and training needs.

But what exactly are voluntary skill standards? Voluntary skill standards are industry-based, industry-verified performance specifications that identify the knowledge, skills, and abilities an individual needs to succeed in an industry. Voluntary skill standards are critical to improving the skills of employees, raising standards of living, and improving the overall competitiveness of the nation's economy.

Voluntary skill standards provide a common language that enhances communication between employers, organized labor, educators, current employees, and job seekers. Working together, these partners can help specify the academic, occupational, and employability skills necessary for education and training as well as hiring, retention and promotion within a company or industry. Communicating these voluntary skill standards can help students, parents, individuals in transition, and current employees make sound decisions about their own education and training needs in a changing marketplace.

The Challenge and Opportunity

The United States is being confronted with increased competition and numerous challengers. What was once a worldwide economy dominated by American companies has now become an intense struggle for markets. For example, in the metalworking industry, an industry critical to the Ohio economy, off-shore competitors have made clear their intent to reduce the nation's marketshare from 60% to 40% by the year 2005.[1]

Increasingly, competitiveness is being determined by the quality and productivity of the workforce. The challenge is to supply and sustain a highly skilled workforce that is motivated and adaptive to change. In partnership with business, industry, education, and labor, leaders need to specify the academic, occupational, and employability standards for current and emerging workforces. Through such partnering, the focus can be placed on the development of a highly skilled workforce so that industries and individuals can become more competitive on a global level.

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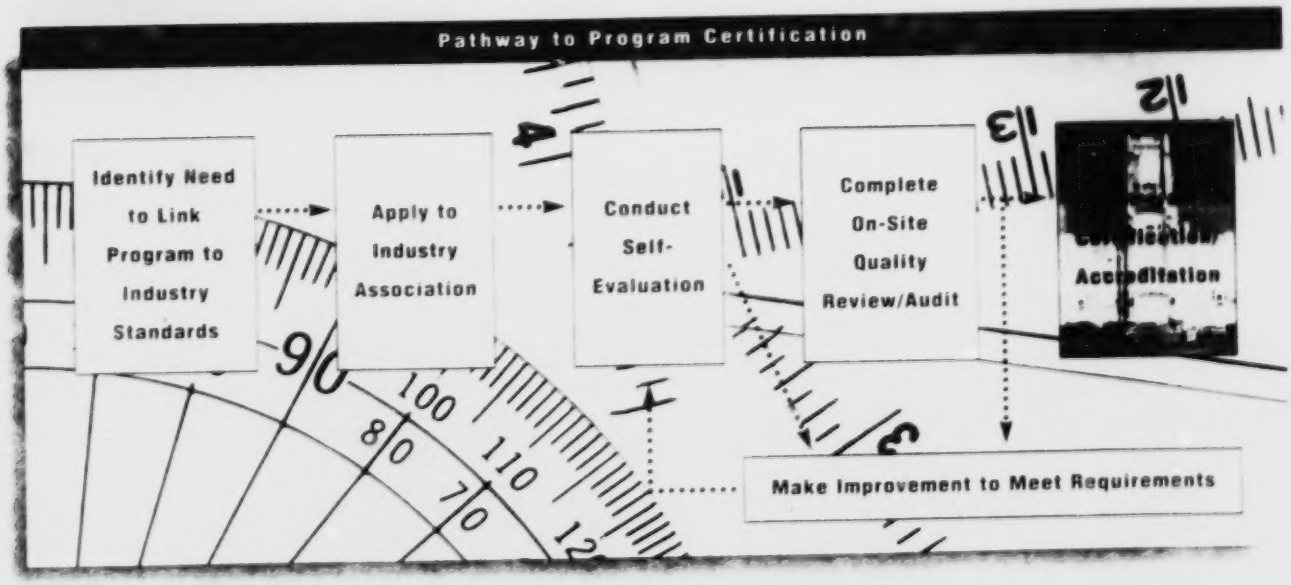
Voluntary skill standards address these challenges head-on by providing benchmarks for training decisions. Furthermore, voluntary skill standards create well-marked paths for student and employee development. Individuals may choose to follow these paths from school to work or from work to continued education and training in the pursuit of growth and retention within a company or industry.

Ohio's employers, educators, training professionals, and labor leaders can implement voluntary skill standards designed to develop highly skilled workers whose knowledge, skills, and abilities can be benchmarked against the best in the world. The implementation of voluntary skill standards encourages the alignment of education and training curricula with industry needs, and this curricula can be continuously updated as workplace demands change.

The Evolution of Voluntary Skill Standards

The idea of industry-based, voluntary skill standards is not new. Since the early 20th century, industry, labor, and education have collaborated to develop standards for industries and training programs. However, within the last ten years, the development and implementation of voluntary skill standards has accelerated. The timeline on page 14 illustrates the major Ohio and national events that have contributed to the development of skill standards. Many industry associations are now developing voluntary skill standards for employees and training programs. For example, on page 7, the National Institute for Metalworking Skills (NIMS), an association representing numerous metalworking industry associations


Pathway to Program Certification
Identify Need to Link Program to Industry Standards
Apply to Industry Association
Conduct Self-Evaluation
Complete On-Site Quality Review/Audit
Accreditation
Make Improvement to Meet Requirements

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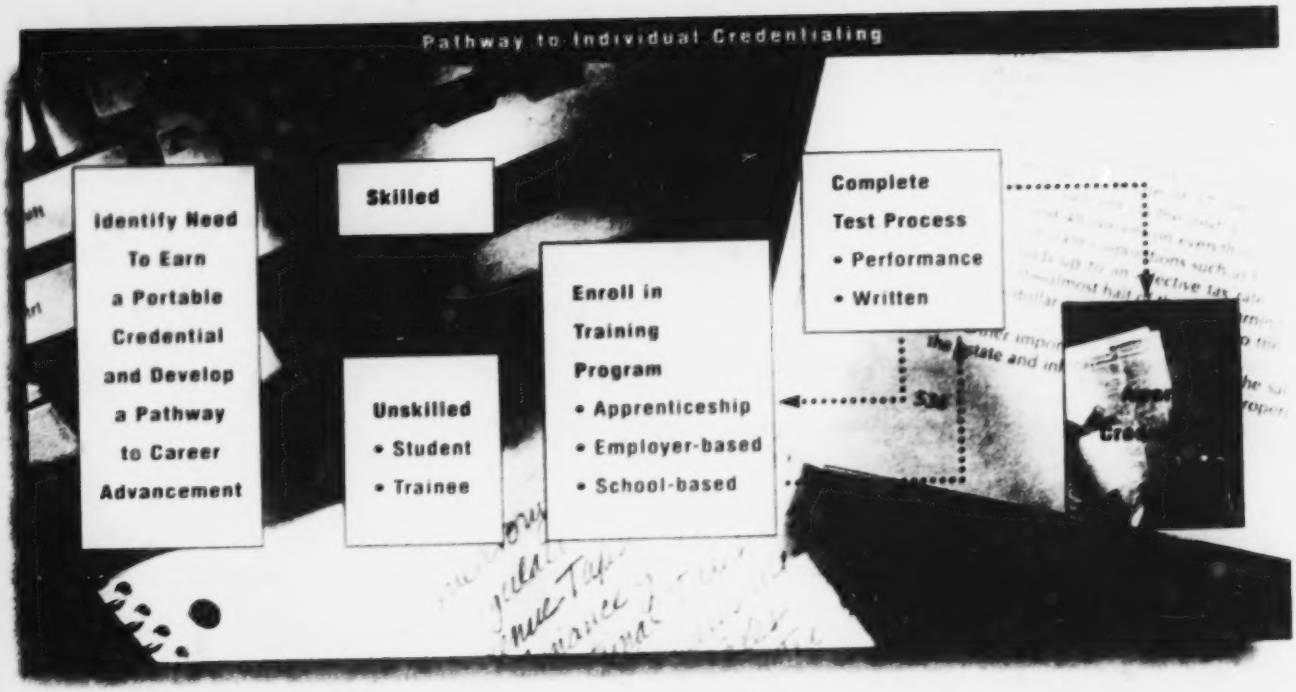

has identified metalworking skill levels. See pages 8-13 for a list of standards currently under development and their implementation status in Ohio.

The Certification and Credentialing Process

Training programs, students, and employees have the opportunity to benefit from voluntary skill standards by becoming credentialed or certified. School-based and employer-based training programs can become certified/accredited by a sponsoring industry association. Students and employees can earn portable credentials/certifications that attest to their skill levels. Each of these credentials demonstrates that the individuals and the training programs meet the voluntary skill standards identified by the industry.

The terms certification, credential, and accreditation have similar meanings; however, certain industry associations prefer some terms over others. In general, school-based and employer-based training programs can become certified or accredited, and individuals (whether students or employees) can become certified or credentialed.

Certification/Accreditation for Training Programs

For school-based and employer-based training programs to become certified/accredited, the programs must go through a rigorous certification/accreditation process. First, they must contact the industry association and apply for certification/accreditation. Typically, the industry association provides the information and technical assistance needed for the training program to complete this process. The certification/accreditation process usually involves a self-evaluation and an on-site review by an external evaluation team. During the on-site review, the external evaluation team reviews the training program site, the equipment, and training-related documentation, i.e., curriculum, instructional plans, and record keeping. The evaluation team also conducts interviews with the training program staff, students, and local employers who work with the training program. After the internal and external review processes are completed, the industry association decides whether the training program will receive certification/accreditation. This certification/accreditation is usually valid for a period of five years.

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The Need for Partnerships
Benefits

Individual Credentialing for Students and Employees

For an individual (a student or employee) to become certified or credentialed, the person must meet written and performance-based requirements. Many industry associations certify/credential certain levels of skills within an occupation. To prepare for the testing process, the individual may choose to enroll in a certified/accredited training program. However, if the individual has prior skilled experience and does not need or wish to complete a training program, the individual may choose to forego the training and be tested by a local training provider or employer certified to conduct the testing. The certificates/credentials earned by the individual may be valid for a specified number of years, or they may be valid for life, depending on the certifying agency.

The Need for Partnerships

An effective way to implement industry-based, industry-verified, voluntary skill standards is by building partnerships between business, industry, labor, communities, and education. Once partnerships are formed, the process of analyzing and finding solutions to training needs becomes the goal of all partners, not just one entity. Some steps to develop partnerships are outlined in the checklist on the left.

Checklist to Help Develop Partnerships

- ❑ Collect current information about the status of voluntary skill standards in the industry area.
- ❑ Determine the current status of implementation in the community, industries, schools, etc.
- ❑ Gather representatives from industry associations, employers, employment services, organized labor, community colleges, and vocational education.
- ❑ Decide on a course of action for implementing partnerships with responsibilities identified.
- ❑ Develop a realistic timeline for accomplishing actions.
- ❑ Determine if goals are accomplished.
- ❑ Market opportunities of voluntary skill standards to the community, employees, and students and parents.

Benefits

How Employers Benefit from Voluntary Skill Standards

Just as a business sets product specifications for suppliers, it also defines what skills it needs from its employees. Only when employers see voluntary skill standards making a valuable contribution to business will voluntary skill standards become respected and universally implemented.

Voluntary skill standards help employers:

✓ Boost quality, productivity, time-to-market, innovation, and competitiveness.

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- ✓ Provide a more focused return on education and training investments;
- ✓ Benchmark company-based training programs to world-class standards;
- ✓ Reduce the costs of remedial training and skill assessment of current employees;
- ✓ Improve communication by giving employees a clearer picture of what is expected of them; and
- ✓ Meet the demand for new skills required by rapid changes in technology.

How Education and Training Professionals Benefit from Voluntary Skill Standards

Education and training professionals play a critical role in the implementation of voluntary skill standards by connecting knowledge and skills acquired in the classroom to the requirements of the workplace.

Voluntary skill standards help education and training professionals:

- ✓ Gain a greater understanding of the knowledge, skills, and abilities employees need, including academic, occupational, and employability skills;
- ✓ Develop a better understanding of the technology and work organization changes that affect industry;
- ✓ Define objectives for training programs that yield improved student placement opportunities;
- ✓ Provide the opportunity for training programs to become nationally recognized through certification;
- ✓ Speak a common language for partnering with businesses and organizations;
- ✓ Strengthen relationships with local employers;
- ✓ Communicate more effectively with students and parents about career opportunities;
- ✓ Market programs more effectively; and
- ✓ Benchmark programs to industry-validated standards.

Implications for Ohio's Vocational Education and Higher Education Programs

Before national skill standards were developed, Ohio's vocational education and Tech Prep programs relied on business, industry, and labor to identify and verify the skills that students needed for their chosen occupations. Ohio's nationally recognized Occupational Competency Analysis Profiles (OCAPs) and Technical Competency Profiles (TCPs) provide a common core of industry-verified standards in academic, employability, and occupational skills.

Ohio's vocational education programs and colleges and universities have been involved in the implementation of skill standards for many years. With the recognition of industry-developed, voluntary skill standards, Ohio's vocational education system in partnership with the Ohio Board of Regents will ensure that, where applicable, vocational education and Tech Prep programs will become certified. OCAPs and TCPs will include skill standards so that students have the opportunity to become certified/credentialed within a chosen occupation.

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How Organized Labor Benefits from Voluntary Skill Standards

Organized labor's active involvement in the development of voluntary skill standards has the potential to help organized labor improve employment opportunities for employees, encourage a greater focus on continuous skill upgrading, provide clear guidelines for assessing employees' skills, and enhance employees' capacity to actively contribute to workplace change and economic prosperity.

Voluntary skill standards have the potential to help organized labor:

✓ Increase standards of living and enhance economic security for employees by improving access to high skill, high wage jobs and career opportunities;

✓ Restructure work organizations and empower employees to develop higher levels of skills and increase decision-making responsibilities;

✓ Enhance apprenticeship training programs by providing consistent benchmarks for skill achievement;

✓ Negotiate new job opportunities by outlining work requirements and creating objective criteria for job selection; and

✓ Encourage fairness and accuracy in hiring, training, promoting, and retaining employees.

How Students and Employees Benefit from Voluntary Skill Standards

By attaining higher skill levels, students will become more competitive in the job market. As future skilled employees, students will also enjoy improved standards of living and greater economic security. Voluntary skill standards and certification systems provide a way to gain universal recognition for employees' accomplishments, whether they achieve skills through formal training programs or from years of informal learning. Employees can use the standards as a guide for career development and progress assessment.

Voluntary skill standards can open doors of opportunity for both students and employees. These standards represent portable skills recognized across Ohio and the nation. The transition from secondary to post-secondary educational programs is facilitated by the common expectations outlined in voluntary skill standards. Students and employees can continue to build skills by progressing through multiple levels of industry certification. By doing so, students can continue their educational development, earn college degrees, and move into

professional careers. In a constantly changing economy, voluntary skill standards enhance long-term employability.

Voluntary skill standards help students and employees:

- ✓ Earn portable industry-recognized skill credentials;
- ✓ Understand what is required to succeed in the workplace;
- ✓ Communicate skill levels to future employers;
- ✓ Increase skill and employability levels;
- ✓ Achieve a competitive edge over other job applicants;
- ✓ Transition more easily between work roles to ensure long-term employability; and
- ✓ Earn higher wages through improved skills.

If Ohio is to maintain its competitive edge in a global economy, business, industry, labor, education, and communities need to join together to implement voluntary skill standards. The charts on pages 8-13 identify current initiatives that are implementing standards in Ohio and across the nation.

Credentialing and Career Opportunities in Metalworking

Students and employees can build their skills by progressing through multiple levels of industry certification. Individuals can choose to increase their career opportunities by earning college degrees and pursuing professional careers. In this chart, NIMS has identified technical and professional career opportunities within the metalworking industry.

Level I Skills

Metalforming
Machining

Level II and III Skills

Metalforming Occupations
Stamping
Roll Forming
Spinning
Slide Forming
Press Brake
CNC/NC Punch Press
Laser Cutting

Machining Occupations
Screw Machining
Machining

Tool & Die and Mold-Making Occupations
Tool & Die Making
Mold-Making

Machine Building and Maintenance Occupations
Machine Building
Machine Tool Maintenance Service and Repair

Capstone Opportunities

Business Owner
Engineering
Engineering Technology
General Management
Industrial Management
Journeyperson
Industry Sales

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Current Status of the Voluntary Skill Standards Initiatives in Ohio

Industry	Sponsors	Program Certification/Accreditation	Current Status
Automotive	National Institute for Automotive Service Excellence (ASE) and the National Automotive Technology Education Foundation (NATEF)	Programs can be certified in the following areas **Automobile** 1. Brakes 2. Electrical/Electronic Systems 3. Engine Performance 4. Suspension and Steering 5. Automatic Transmission and Transaxle 6. Engine Repair 7. Heating and Air Conditioning 8. Manual Drive Train and Axles **Collision Repair and Refinish Automobile** 1. Structural Analysis and Damage Repair 2. Nonstructural Analysis and Damage Repair 3. Mechanical and Electrical Components 4. Plastics and Adhesives 5. Painting and Refinishing **Commercial Truck and Equipment (Medium/Heavy Truck)** 1. Diesel Engines 2. Suspension and Steering 3. Brakes 4. Electrical/Electronics Systems 5. Preventive Maintenance Inspection 6. Gasoline Engines 7. Drivetrain 8. Heating and Air Conditioning	All Ohio vocational automotive and collision repair programs have been certified by NATEF since 1994. All Ohio vocational commercial truck and equipment programs will be certified by the year 2001.
Electronics	Consumer Electronics Manufacturers Association (CEMA) and the Electronic Industry Association (EIA)	Accredited programs must meet standards in the following nine areas: 1. Behavioral Skills and Work Habits 2. General Technical Skills 3. DC Circuits 4. AC Circuits 5. Discrete Solid State Devices 6. Analog Circuits 7. Digital Circuits 8. Microprocessors and Microcomputers 9. Basic and Practical Skills	In 1998, CEMA plans to launch its accreditation at regional level. Ohio has requested to be a pilot in the implementation of program accreditation.

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Individual Credentialing	Length of Certification/ Credential	Procedure for Updating the Skill Standards	Comments	Contact Information
At program completion, students can gain work experience and become credentialed in any and all of the certified areas. Individuals can attain master technician status upon becoming credentialed in all areas within their field.	Program: 5 years Individuals: 5 years	NATEF maintains a repository with national records for programs and individuals certified and credentialed through NATEF. Standards are updated by the industry every 3 years.	Ohio was the first state to have an automotive program certified (Tri-County JVS in 1983). All Ohio automotive vocational programs currently are ASE certified. All programs and teachers must have at least 6 of 8 areas of certification. Collision repair programs must meet 4 of 5 areas, and truck mechanics programs must meet 5 of 8 areas.	Automotive Service Excellence (ASE) and National Automotive Technicians Education Foundation (NATEF) 13505 Dulles Technology Drive Herndon, VA 22071-3415 Phone: (703) 904-0100 Fax: (703) 713-3919 Web Site: www.natef.org
N/A	Program: 5 years	The process for updating the standards is currently under development.	N/A	Consumer Electronics Manufacturers Association (CEMA) 2500 Wilson Boulevard Arlington, VA 22201-3834 Phone: (703) 907-7601 Fax: (703) 907-7601 Web Site: www.cemacity.org

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Current Status of the Voluntary Skill Standards Initiatives in Ohio

Industry	Sponsors	Program Certification/Accreditation	Current Status
Metalworking	National Institute for Metalworking Skills, Inc. (NIMS)	Certified programs must meet quality requirements in the following six areas: 1 Purpose and Planning 2 Facility Requirements 3 Equipment, Tooling and Measuring 4 Administration 5 Instructional Staff Qualifications 6 Program Features	All Ohio vocational metalworking programs will be certified at Level I by the year 2002. Throughout 1997-98, eight vocational programs and five post-secondary programs are piloting the certification process.
Printing	Printing Industries of America (PIA) Graphic Arts Technical Foundation (GATF)	Training programs can be accredited by PIA in the following areas: 1 Introduction to Printing 2 Basic Offset Press 3 Electronic Imaging 4 Image Assembly and Proofing 5 Reproduction Photography 6 Finishing and Binding 7 Advanced Offset Press 8 Advanced Image Assembly and Platemaking 9 Advanced Electronic Imaging	All Ohio vocational graphic arts programs will be certified by the year 2000 in 3 of the 9 PrintEd certification areas: Introduction to Printing, Basic Offset Press and Electric Imaging.
Retail	National Retail Foundation (NRF) and the National DECA	Training program standards have been developed for the retail sales associate level.	These standards are in the early stages of Ohio vocational program implementation.
Welding	American Welding Society (AWS)	Training programs can be certified for Levels I, II, and III (entry, advanced, and expert). Levels I, II, and III encompass all types of welding in all types of positions. However, the degree of difficulty and proficiency are determined within each level.	All Ohio vocational welding programs will be certified by the year 2003.

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Individual Credentialing	Length of Certification/ Credential	Procedure for Updating the Skill Standards	Comments	Contact Information
Individuals can earn credentials at Level I and progress to Levels II and III. Experienced employees can earn credentials at the level of their current skill. Credentials are based on skill modules at each level. There is no requirement to earn all skill certificates at a given level before advancing to a higher level of a particular machine skill. (Reference chart on page 7.)	Provisional: 1 year Full: 5 years Individuals: 5 years	NIMS maintains a national registry of individuals and programs that have earned credentials and certification, respectively. Each voluntary skill standard set must be reviewed and updated by the industry every three to five years.	Ohio was the first state to have a certified metal-working training program (Sentinel Joint Vocational School in 1997). Ohio also was the first state to recognize individuals earning credentials, as well as and the first state to have existing metalworkers earn credentials.	National Institute for Metalworking Skills, Inc. (NIMS) P.O. Box 787 Vienna, VA 22183 Phone: (703) 281-1610 Fax: (703) 938-4342 Web Site: www.nims-skill.org
GATF may credential individuals at the journey level in Prepress/Imaging, Finishing & Distribution, and Sheet Fed & Offset Press Operation.	N/A	N/A	*For additional contact information:* National Council for Skill Standards in Graphic Communications 208 Lafayette Center Kennebunk, ME 04043 Phone: (207) 985-9898 Fax: (207) 985-6347	PrintED (Printing Industries of America, Inc. (PIA) 100 Daingerfield Road Alexandria, VA 22314 Phone: (703) 519-8100 Fax: (703) 548-3227 Web Site: www.printing.org *(See Comments for more contact information)* Graphic Arts Technical Foundation (GATF) 200 Deer Run Road Sewickley, PA 15143 Phone: (412) 741-6860 Fax: (412) 741-2311 Web Site: www.gatf.org
N/A	N/A	N/A	Ohio is represented on the NRF board.	National Retail Federation (NRF) Liberty Place, Suite 1000 325 7th Street, N.W. Washington, DC 20004 Phone: (202) 783-7971 Fax: (202) 737-2849 Web Site: www.nrf.com
Individuals can earn certificates at Level I and then progress to Levels II and III. At Levels II and III, individuals can specialize in certain types of welding within each level.	Program: 5 years Individuals: indefinite	Once certified, programs will be updated every 2.5 years. AWS is currently developing the updating process.	For programs to become certified, welding instructors must be a Certified Welding Educator (CWE). Ohio will pilot the certification process in 1998.	American Welding Society (AWS) 550 N.W. LeJeune Road Miami, FL 33126 Phone: (800) 443-WELD Fax: (305) 443-7559 Web Site: www.electricnet.com/cofolder/amweldng.html

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Current Status of Other Voluntary Skill Standards Initiatives in Ohio

Industry	Sponsors	Current Status	Contact Information
Advanced Manufacturing	National Coalition for Advanced Manufacturing (NACFAM)	These standards have not been implemented in Ohio.	National Coalition for Advanced Manufacturing (NACFAM) 1202 New York Avenue N.W. Suite 700 Washington, DC 20005 Phone: (202) 216-2740 Fax: (202) 289-7618 Web Site: www.bmpcoe.org/nacfam
Agriscience	National FFA Foundation	These standards are in the process of being merged with the bio-science standards.	National FFA Foundation P.O. Box 45205 Madison, WI 53744 Phone: (608) 829-3105 Fax: (608) 829-3195 Web Site: www.ffa.org
Air Conditioning, Heating, and Refrigeration	Southern Association of Colleges and Schools–VTECS	These standards were incorporated into the development of the OCAP list for HVAC programs.	Southern Association of Colleges and Schools VTECS 1866 Southern Lane Decatur, GA 30033-4097 Phone: (800) 248-7701, ext. 543 Fax: (404) 679-4556 Web Site: www.sacs.org
Bioscience	Education Development Center	These standards are in the process of being merged with the agriscience standards.	Education Development Center 55 Chapel Street Newton, MA 02158 Phone: (617) 969-7100 ext. 2373 Fax: (617) 332-4318 Web Site: www.edc.org/home
Chemical Processing	American Chemical Society (ACS)	Standards have been developed for chemical laboratory technicians and chemical process technicians. These standards have not been implemented in Ohio.	American Chemical Society (ACS) 1155 Sixteenth Street, N.W. Washington, DC 20036 Phone: (202) 872-8734 Fax: (202) 872-8068 Web Site: www.acs.org
Computer Aided Drafting and Design (CADD)	National Coalition for Advanced Manufacturing (NACFAM)	These standards have not been implemented in Ohio.	National Coalition for Advanced Manufacturing (NACFAM) 1202 New York Avenue, N.W. Suite 700 Washington, DC 20005 Phone: (202) 216-2740 Fax: (202) 289-7618 Web Site: www.bmpcoe.org/nacfam
Electrical Construction Worker	National Electrical Contractors Association (NECA)	These standards were incorporated into the development of the OCAP list for electricity programs.	National Electrical Contractors Association (NECA) 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814-5372 Phone: (301) 657-3110 Fax: (301) 215-4545 Web Site: www.necanet.org
Grocers	National Grocers Association	The National Retail Foundation is considering merging these standards with the retail standards.	National Grocers Association 1825 Samuel Morse Drive Reston, VA 22090 Phone: (703) 437-5300 Fax: (703) 437-7768

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Industry	Sponsors	Current Status	Contact Information
Hazardous Materials Management	Center for Occupational Research and Development (CORD)	Standards have been developed for four clusters: Laboratory Technician, Compliance Technician, Field Operations Technician, and Transportation/ Disposal Technician. Ohio vocational environmental management programs are using the CORD curriculum for hazardous materials management; however, programs are not certified in this area. Students can become credentialed in a variety of areas related to OSHA certifications; for example, students can earn a Commercial Drivers License (CDL) with HAZMAT certification after completing a training program.	Center for Occupational Research and Development (CORD) 601 Lake Air Drive Waco, TX 76710 Phone: (817) 772-8756 Fax: (817) 772-8972 Web Site: www.cord.org
Health Care	WestEd	Standards have been developed for four clusters: Therapeutic, Diagnostic, Informational, and Environmental. These standards are not yet implemented in Ohio. The Health Care skill standards were developed with some input from the Service Employees International Union. Contact Margaret Peisert at (202) 898-3317.	WestEd 730 Harrison Street San Francisco, CA 94107-1242 Phone: (415) 241-2712 Fax: (415) 241-2702 Web Site: www.fwl.org/nhcssp
Heavy Highway Construction	Laborers-AGC Education & Training Fund	These standards have not been implemented in Ohio.	Laborers-AGC Education & Training Fund P.O. Box 479 27055 Ohio Avenue Kingston, WA 98346 Phone: (360) 297-6152 Fax: (360) 297-3368
Hospitality and Tourism	Council on Hotel Restaurant and Institutional Education (CHRIE)	Skill standards, without credentials, exist in eight areas: Bellperson, Busser, Cashier, Concierge, Front Desk Clerk, Host/Hostess, Reservationist, and Server. These standards were incorporated into the development of the OCAP lists.	CHRIE 1200 17th Street, N.W. Washington, DC 20036-3097 Phone: (202) 331-5990 Fax: (202) 785-2511
Human Services	Human Services Research Institute	These standards have not been implemented in Ohio.	Human Services Research Institute 2336 Massachusetts Avenue Cambridge, MA 02140 Phone: (617) 876-0426, ext. 330 Fax: (617) 492-7401
Photonics	Center for Occupational Research and Development (CORD)	Standards have been developed for six clusters: Environment/Energy/Transportation, Defense, Public Safety/Aerospace, Computers, Manufacturing/Test and Analysis, Medical, and Communications. These standards have not been implemented in Ohio.	Center for Occupational Research and Development (CORD) 601 Lake Air Drive Waco, TX 76710 Phone: (817) 772-8756 Fax: (817) 772-8972 Web Site: www.cord.org
Uniform and Textile Services	Uniform and Textile Services Association (UTSA)	These standards have not been implemented in Ohio.	Uniform and Textile Services Association (UTSA) 1300 North 17th Street, Suite 750 Rosslyn, VA 22209 Phone: (703) 247-2608 Fax: (703) 841-4750

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Key Dates in the Evolution of Industry-Based, Voluntary Skill Standards

1917 1935 1937 1940 1958 1963 1969 1983 1983 1989 1989 1990 1990 1990 1992 1992 1992 1992 1993 1994

1917 Congress passes the Smith Hughes Act of 1917. The Act provides federal support for vocational training in agricultural education, trade and industrial education, and home economics education.

1935 Ohio forms the State Advisory Committee for Employee Training in Industry. Representatives from industry, labor, and vocational education work together to develop local trade and industrial education programs.

1937 Congress passes the National Apprenticeship Act, also known as the Fitzgerald Act, bringing together employers and labor unions to develop apprenticeship programs and to form the standards of apprenticeship training.

1940 Between 1940 and 1944, seven new acts are passed, collectively known as the War Production Training Programs. These programs focus on specialized training in occupations needed to win World War II.

1958 National Defense Education Act provides support for the training of highly skilled technicians.

1963 Vocational Education Act of 1963 broadens the scope of vocational education programs.

1969 Ohio passes legislation that provides funding for local vocational and technical schools.

1983 Tri-County JVS is the first vocational program in the nation to receive ASE/NATEF certification for their adult automotive technology program.

1983 National Commission of Excellence in Education publishes its report, *A Nation at Risk*. The report warns that mediocrity and poor skills threaten the nation's economic competitiveness.

1989 At the National Education Summit, the nation's governors gather to address educational issues, including the need for voluntary skill standards.

1989 Ohio Senate Bill 140 requires the modernization of vocational curriculum that will furnish students with the skills needed to participate in the workforce of the future.

1990 Ohio develops Occupational Competency Analysis Profiles (OCAPs) for all vocational training programs. Competencies are industry-verified. As revised, they reflect national skill standards.

1990 Congress passes the Carl D. Perkins Act of 1990. The Act provides support for the development of industry-based, voluntary skill standards and requires implementation of Tech-Prep programs.

1990 *America's Choice: High Skills or Low Wages* is published. The report warns that without a highly skilled workforce, workers will be relegated to low-wage jobs.

1992 SCANS report is published. SCANS outlines the core competences of a high performance workplace.

1992 Workforce 2020 Conference is held. Representatives from business, industry, labor, and government create recommendations for the development of national, voluntary skill standards and processes for certification.

1992 *Jobs: Ohio's Future* is published by the Governor's Human Resources Advisory Council. It presents the strategic plan for improving the skills of Ohio's workforce.

1992 The U.S. Departments of Education and Labor fund 22 voluntary skill standards demonstration projects. Ohio becomes a partner in two of these projects.

1993 Council of Great Lakes Governors adopts a regional commitment to develop a highly skilled workforce called the Great Lakes Guarantee.

1994 All Ohio vocational automotive technology programs are required to meet ASE certification standards.

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1994 1994 1994 1995 1996 1996 1997 1997

1994 School-to-Work Opportunities Act is passed that emphasizes high-skill, high-wage careers.

1994 Congress passes GOALS 2000: Educate America Act of 1994. Title V establishes the National Skill Standards Board.

1994 Congress passes the National Skill Standards Act of 1994. Industry associations begin to develop voluntary skill standards in their respective areas. Associations begin to develop certification processes for school-based and employer-based training programs.

1994 Norton Manufacturing Company in Fostoria, Ohio becomes the first company in the nation to implement national metalworking skill standards.

1995 Ohio's School-to-Work Office is formed and supports national voluntary skill standards projects.

1996 *Ohio's Future at Work: Beyond 2000*, the strategic plan for Ohio's vocational education system, requires vocational training programs to use national voluntary skill standards and industry-based certification programs where applicable.

1996 Norton Manufacturing Company in Fostoria, Ohio becomes the first company in the nation to certify workers to national metalworking skill standards.

1997 Council of Great Lakes Governors endorses national metalworking skill standards as part of the implementation of the Great Lakes Guarantee.

1997 Sentinel Joint Vocational School's machine trades program in Tiffin, Ohio is the first program in the nation to receive NIMS certification.

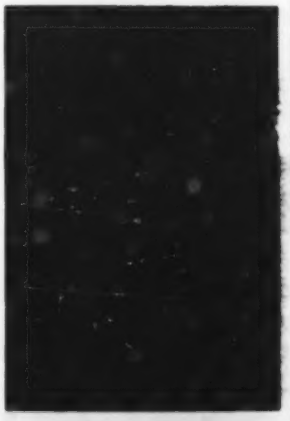
Key

Yellow dates indicate Ohio events.

Blue dates indicate national events.

The Norton Story

In December 1994, Ohio created a partnership with the National Institute for Metalworking Skills (NIMS) and Norton Manufacturing Company that made the Fostoria company the first in the nation to implement national metalworking skills standards. In 1995, training partnerships were created with Terra Community College and Vanguard-Sentinel Vocational Schools to identify gaps in Norton's existing training and provide skill standards-based training to close the gap. In 1996, the company's need for more workers brought the Fremont Private Industry Council (PIC) into the partnership, resulting in the nation's first skill standards-based training program that was funded by the Job Training Partnership Act (JTPA). In July 1996, Governor Voinovich awarded the nation's first metalworking credentials to eight Norton workers—including three who had participated in the JTPA program.



As a result of this project, Norton employees have presented their experience throughout the nation and the model is being replicated in 14 other states. The PIC has funded two more programs and Terra Community College has expanded its skill standards services to over 20 area companies. In September 1997, Sentinel Joint Vocational School became the first school in the nation to receive NIMS program certification. Ohio now has over one dozen community colleges and vocational schools that teach to national metalworking skill standards. Over 70 percent of individuals who have received NIMS credentials come from Ohio and over 100 more will be added to the list in 1998.

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Web Site: www.nssb.org

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Voluntary skill standards may be developed

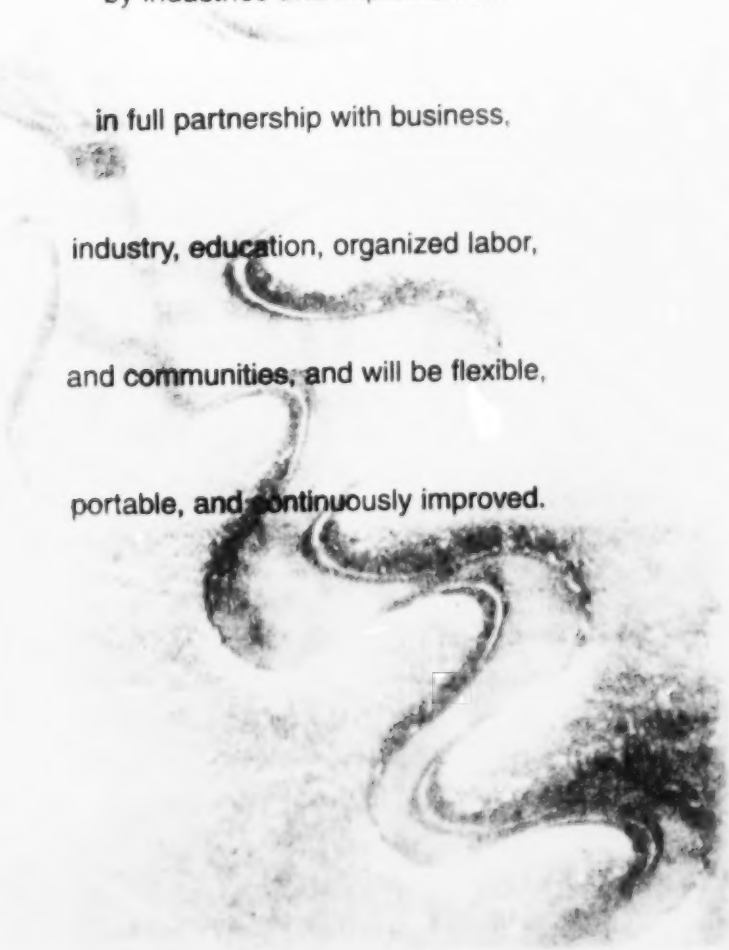
by industries and implemented

in full partnership with business,

industry, education, organized labor,

and communities, and will be flexible,

portable, and continuously improved.



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